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Résumé de l'article

Le monde du travail connait des transformations majeures (télétravail, nouvelles technologies, Industrie 4.0, réforme sociale dans certains pays) pour lesquelles les relations professionnelles peuvent jouer un rôle central. Dans ce contexte, ce travail présente la conception d'une approche alternative de dialogue social en entreprise – la démarche de « Design Social » – cherchant à renforcer la participation des parties prenantes des relations professionnelles au cours du déploiement d'une technologie numérique dans un groupe industriel en France. A partir d'un cadre théorique et méthodologique de l'ergonomie de l'activité, nous présentons une analyse de la co-conception de la démarche, et sa conception dans l'usage lors du déploiement sur un site industriel. La méthode repose sur des entretiens, des observations de l'activité de travail, des simulations du travail futur, et une analyse documentaire. Les possibilités offertes par la démarche sont révélées (par exemple, une participation importante des parties prenantes et des discussions collectives sur les transformations du travail) ainsi que des résistances du réel (comme les difficultés de proposer un accord de méthode entre les parties prenantes). Ces résultats renseignent sur la qualité du dialogue social en entreprise et renforcent une épistémologie de l'action du dialogue social en lien avec les transformations du travail. Les résultats illustrent également une démarche originale visant à transformer le dialogue social local dans un contexte d'innovation au travail.

Précis

Cet article présente les résultats d'une recherche action visant à renforcer la participation des parties prenantes du dialogue social (syndicalistes, encadrement et travailleurs) en entreprise en cours de transformation digitale, en mobilisant des méthodologies de l'ergonomie de l'activité. A partir d'une présentation de la co-conception de l'approche proposée, nous décrivons le déroulement de son implantation sur un site industriel et sa re conception dans l'usage. Ce travail contribua à la participation au cours du projet de représentants des salariés sur le sujet nouveau des transformations digitales, conduisant à la définition d'une nouvelle organisation du travail, ainsi qu'au développement de l'approche de Design Social.

A Social Design Approach: Enhancement of Local Social Dialogue on the Transformation of Work by Digital Technology

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Summary

The world of work is undergoing major transformations (teleworking, new technologies, Industry 4.0, social reform in some countries) in which labour relations are likely to play a central role. In this context, our case study presents an alternative approach to local social dialogue: "Social Design." The specific aim was to mobilize stakeholders to deal with the introduction of digital technology at a large industrial company in France. Within the theoretical and methodological framework of activity-centred ergonomics, we analyzed the process of co-design and the process of design "in use." We conducted interviews, work activity observations and simulations of future working conditions. We identified "fruitful possibilities" (e.g., more extensive participation by stakeholders and collective discussions about the transformation of work) and "real-life resistance" (e.g., difficulties in finding common agreement). We report on the quality of local social dialogue and provide an epistemology of the action of social dialogue on the theme of the transformation of work. In sum, we describe an original initiative to transform local social dialogue in the context of a changing workplace.

Abstract

We present the results of a research-action initiative to strengthen participation by social dialogue stakeholders (union representatives, managers and workers) in companies that are being digitally transformed. For this, we used activity-centred ergonomics. After presenting a co-design process, i.e., "Social Design," we describe how the initiative was carried out in a large industrial company and how it was re-designed "in use." We thus helped certain union representatives participate in dialogue on the topical issue of digital transformation, thereby helping define a new organizational structure in the workplace and further developing the "Social Design" approach.

Key words: labour relations; activity-centred ergonomics; method design; industry 4.0

Résumé

Le monde du travail connait des transformations majeures (télétravail, nouvelles technologies, Industrie 4.0, réforme sociale dans certains pays) pour lesquelles les relations professionnelles peuvent jouer un rôle central. Dans ce contexte, ce travail présente la conception d'une approche

alternative de dialogue social en entreprise – la démarche de « Design Social » – cherchant à renforcer la participation des parties prenantes des relations professionnelles au cours du déploiement d'une technologie numérique dans un groupe industriel en France. A partir d'un cadre théorique et méthodologique de l'ergonomie de l'activité, nous présentons une analyse de la co-conception de la démarche, et sa conception dans l'usage lors du déploiement sur un site industriel. La méthode repose sur des entretiens, des observations de l'activité de travail, des simulations du travail futur, et une analyse documentaire. Les possibilités offertes par la démarche sont révélées (par exemple, une participation importante des parties prenantes et des discussions collectives sur les transformations du travail) ainsi que des résistances du réel (comme les difficultés de proposer un accord de méthode entre les parties prenantes). Ces résultats renseignent sur la qualité du dialogue social en entreprise et renforcent une épistémologie de l'action du dialogue social en lien avec les transformations du travail. Les résultats illustrent également une démarche originale visant à transformer le dialogue social local dans un contexte d'innovation au travail.

Précis

Cet article présente les résultats d'une recherche action visant à renforcer la participation des parties prenantes du dialogue social (syndicalistes, encadrement et travailleurs) en entreprise en cours de transformation digitale, en mobilisant des méthodologies de l'ergonomie de l'activité. A partir d'une présentation de la co-conception de l'approche proposée, nous décrivons le déroulement de son implantation sur un site industriel et sa re conception dans l'usage. Ce travail contribua à la participation au cours du projet de représentants des salariés sur le sujet nouveau des transformations digitales, conduisant à la définition d'une nouvelle organisation du travail, ainsi qu'au développement de l'approche de Design Social.

Mots clés: relations professionnelles; ergonomie de l'activité; conception de méthode; industrie 4.0

1. Introduction

In France, as elsewhere in Europe and beyond, it is argued that the digital transformation of industry (1) is made necessary by the globalization of financial markets, in conjunction with the pressures of an ageing working population, outdated industrial facilities and, finally, environmental issues; and (2) requires that the organization of work be profoundly transformed through a redesign that puts "people at the centre." Meanwhile, French labour laws have reshaped social dialogue,[2] thereby causing "pressures" and issues for staff representatives who are supposedly involved in these transformations (Erhel, 2021; Béthoux & Laroche, 2021). In this context, social dialogue researchers and practitioners argue that new forms of societal discourse are required to anticipate, discuss and manage the consequences of social, economic and environmental upheaval both for employment and for existing labour practices (Jolly & Naboulet, 2017; Badri et al., 2018; Caple, 2019; Genz et al., 2019; Haipeter, 2020; Larose, 2021).

It was with this aim in mind that one major French union—here called "the Union"—asked for help in implementing activity-centred ergonomics (Daniellou & Rabardel, 2005; Barcellini, Van Belleghem & Daniellou, 2014) in order to work out an "innovative" social dialogue strategy—known as Social Design[3]—for the introduction of information communication technologies (ICTs) in the metal-working industry.[4] In the case of our research, the new technology would virtualize some aspects of testing for product engineering design. The social dialogue would be local, i.e., in a company workplace. The subject of research is of particular interest in France, which has a tradition of poor social dialogue (Béthoux & Laroche, 2021). There is a need for new ways to improve local social dialogue (Erhel, 2021), one of which may be Social Design.

This article has two aims: (1) present the design process of a Social Design approach, from its initial intention, including the search for potential "testing grounds," to its implementation at one industrial site in the metal-working industry, the implementation being part of the design process; and (2) provide knowledge from this initiative in order to help redesign and implement Social Design, in particular its "fruitful possibilities" and "real-life resistances" (cf. infra). Here, we view Social Design as an organisational artefact aiming at transforming the way social dialogue is organized for a socio-technical project (e.g., Cherns, 1976)—in this case, digital transformation, and we seek to document its "field testing" from a design science perspective (Van Aken and Romme, 2009).

To that end, we were interested in activity-centred ergonomics research on the epistemology of ergonomics in relation to action in design projects (Garrigou et al., 1995; Daniellou and Rabardel, 2005), to design activities and to project management (Béguin, 2010; Détienne, 2006; Barcellini, 2015). That research interested us for two reasons: (1) its pragmatic approach to the actions of practitioners and researchers in the field, an approach grounded in Social Design (see Section 3); and (2) its framework for analyzing what occurs in the field during implementation of a design process, such as Social Design (see Section 4.1). This process of knowledge production could be of particular interest for (1) social dialogue researchers and practitioners, as it covers alternative ways of implementing local social dialogue in France, and for (2) researchers interested in the epistemology of work-transforming actions, including social dialogue on working conditions (Wisner, 1972; Teiger, 1996; Gaudart et al., 2012; Poley & Petit, 2019; Dugué & Petit, 2018).

2. Poor Quality of Local Social Dialogue in France. Time for a Rethink

2.1. Social Dialogue under Pressure in France

Social dialogue in France takes place on various levels (e.g., national, sectoral, local etc.) and is characterised by a greater involvement by the state than in other so-called "developed countries." The high level of state involvement may be explained by the poor quality of social dialogue, combined with a lack of trust between employers and workers (Béthoux & Laroche, 2021) or a recurrent questioning of the legitimacy of trade unions (Erhel, 2021).[5] Indeed, because unions in France act as a counterweight to corporate management (Reynaud, 1975), this adversarial situation can lead to either side refusing to negotiate (Morel, 2016; Tassinari et al., 2021; Wright & McLaughlin, 2021). Moreover, different positions are taken by different trade unions, which often appear divided, and their bargaining power is reduced accordingly (Erhel, 2021). Therefore, French social dialogue is part of a "*culture of conflict*" and "*a lack of trust between employers and employees* [that hinders] *their ability to fully cooperate*" (Béthoux & Laroche, 2021, p.159).

In France, local social dialogue generally takes place among several stakeholders: executive management (of the industrial group and/or the site, depending on company size); the human resources department; and the staff representatives. The elected staff representatives and the trade union delegates are equally entitled to be informed and consulted, although only the union delegates are entitled to participate in company-level collective bargaining. Since 2017, reform to local social dialogue has transformed the very committees it is based on[6] and has caused further difficulties and pressures. Local unions have fewer representatives and fewer hours available for consultation and negotiation. Staff representatives have not been trained in all aspects of the reform. There has been an expansion of responsibilities and subjects dealt with by Social and Economic Committees (CSEs) e.g., quality of working life, use of teleworking, workplace diversity, digital transition, etc. (Erhel, 2021).[7] Local employee representation has become increasingly centralized and reduced, thus running a risk of "remoteness" from local problems (Dupuy & Simha, 2021).

2.2. Activities of Local Social Dialogue Committees and Staff Representatives

Committees, be they economic and social committees or the former health and safety bodies, used to be important places for local social dialogue in France. They have received significant attention from researchers, in particular those who are interested in activity-centred ergonomics (Damothe & Benchekroun, 1999; Poley & Petit, 2019; Dugué & Petit, 2018). Although this committee culture has largely disappeared, its legacy may still inform the dynamics of local social dialogue and influence other "places" of social dialogue (Dugué & Petit, 2018). Research has revealed that the dynamics of local social dialogue committees are fraught with "tensions" between conflict and cooperation due to the diversity of views and issues, as well as the need to work together (Poley & Petit, 2019). Collective action is difficult (Damothe & Benchekroun, 1999). To cope with the tensions, social dialogue stakeholders need to understand the complexity of the issues at stake. Therefore, if real negotiation is to take place, social dialogue requires qualitative knowledge—in particular, knowledge about existing working conditions. For instance, Ponge and Dugué (2017) showed that the social dialogue on a committee (e.g., a transformation project committee) is as good as the knowledge made available to the committee members to "think about the problem" (e.g., a model of work to be transformed, health issues, etc.). Knowledge is based on science and experience, as well as an understanding of models of work or the consequences of transformation produced by "experts" (social dialogue advisors, economists, ergonomists, etc.).

3. Social Design: Rethinking Local Social Dialogue during Digital Transition, using Activity-Centred Ergonomics

This review of the literature indicates that local social dialogue stakeholders (e.g., executives, management, workers, staff representatives) need qualitative knowledge and methods to act on transformation projects. Specifically, they need to understand and anticipate how working and employment conditions will be transformed in order to resolve conflicts and try to recover trust.

It is with this in mind that, in 2017, *the Union* responded to a call for projects from the European Social Fund, asking that body to fund the design and trials of an innovative approach to social dialogue on ICT transformation. To that end, it brought in an operational team, referred to hereinafter as the Social Design Operational Team (SDOT), composed of researchers from the Ergonomics Team of the Research Centre on Work and Development at the Cnam (National Conservatory of Arts of Crafts), and an expert consulting firm that specializes in social dialogue and provides economic and strategic expertise on employment issues.[8] The project would require:

(1) The expertise of *the Union* and the expert consulting firm on the framing of social dialogue, in particular the specifications of a Social Design agreement, which would define the stakeholders' roles, the coordination of dialogue, the decision-making rules, and the commitments of each stakeholder (e.g., timetables, documents, employee information, etc.). Such agreements are justified by the experience of social dialogue proponents on the national level, being inspired by "method agreements," i.e., an *"agreement concluded and negotiated between an employer or employers' representatives and one or more employees' trade unions in order to define the method of negotiating in advance"* (Labour Law, Article L.2222-3-1). A method agreement is thus concluded prior to negotiation with a view to contributing to the good faith of negotiations and establishing or restoring trust (Combrexelle, 2015).

(2) The expertise of an activity-centred ergonomics team regarding actions on design project management (e.g. Garrigou et al., 1995) who would consider the introduction of new technologies and the forms of organization as a process to be designed collectively. The team would emphasize the cooperative, though often conflictual (Lichtenberger, 2013; Benchekroun, 2017), nature of negotiation and consensus-building (Bucciarelli, 1988). Social dialogue requires discussions among stakeholders (workers, managers, designer, staff representative) and the need to equip those discussions with actual and future work-related models. The approach here is similar in general to participatory and socio-technical approaches but has a specific epistemology that focuses on current and future work situations, with reference to activity theory (Rabardel & Béguin, 2005). It has two desired outcomes:

- to enhance social construction to enable the cooperation of stakeholders together (e.g. through a steering committee, workshops, etc.) so that they may share their views and rationales on the organization of work, on health and safety, on HR management, and on other issues at key points in time; and

- produce knowledge to support discussions (see Section 2.2). Such knowledge would combine strategic and economic expertise from a social dialogue expert with analysis based on activity-centred ergonomics theory and methods (Daniellou & Rabardel, 2005). Current work activity is modelled through ergonomic work analysis, and a simulation is created to model how the work would be transformed in the future (Guérin et al., 2007; Barcellini, 2015).

5

Here, Social Design is achieved through local social dialogue on (1) a project to transform work by introducing new digital technologies and (2) the consequences for local employment, local work and work resources (e.g., cooperation, working conditions, technical and social resources). Local social dialogue does not include national or sectoral collective bargaining on more general issues (e.g., working hours, employment, training, pensions, etc.), although it may inform such bargaining.

4. Theory and Methodology for Design and Testing of the Social Design Approach
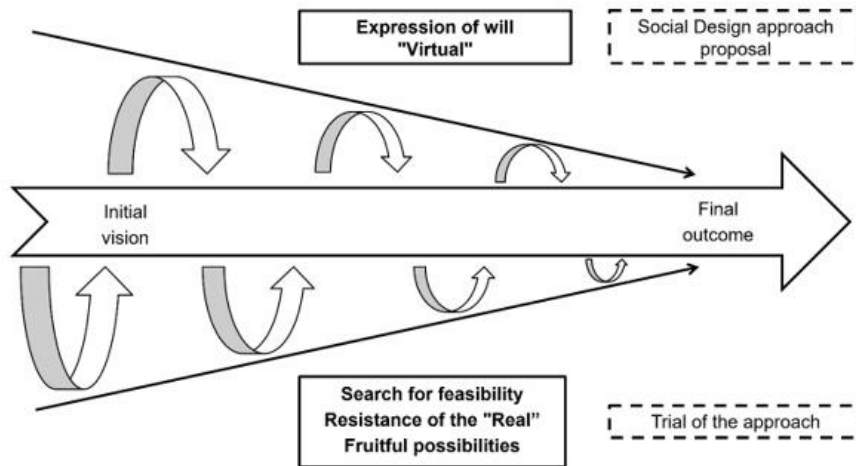
4.1. Theory

We consider a Social Design initiative to be one that is initially designed by the union and the operational team and then "redesigned in use" (cf. Folcher, 2003) through encounters in the field with those individuals who are trying it out. For this, we have drawn on co-designed research (e.g., Bucciarelli, 1988), activity-centred ergonomics research (Béguin, 2010; Détienne, 2006; Chizallet et al., 2020) and ergonomics in project management research (Garrigou et al., 1995; Barcellini, Van Belleghem & Daniellou, 2014).

Collective design processes are cooperative and conflictual (Bucciarelli, 1988, Détienne, 2006), as they involve stakeholders who bring different issues (economic, technical, health and safety, marketing, etc.) to the negotiations and who are encouraged through argumentation during the design process to reach a consensus. Negotiation is supported by intermediary objects (drawings, illustrations) and formalized procedures to facilitate and keep track of consensus-building (Jeantet, 1998).

Béguin (2010) argues that all design processes have tensions between the "virtual" focus of the designers' initial intentions and the real-world focus of "real-life resistance." The design process can thus be viewed as a dialogue between the "desirable" and the "possible" or even between the "virtual" (the intention) and the "real" (the feasible and possible) (Figure 1). The resulting tensions enable the "virtual" and the "real" to converge toward a final outcome—an artefact that will be "put to use." Design is, therefore, a process: *the intentions, the "desirable", are redefined by the very fact of revealing what is possible or impossible* [...] *unexpected* [real-life] *resistance and/or fruitful possibilities*." (Béguin, 2010, p. 66).

Figure 1

Dialogic Model of Design Processes (from Chizallet et al., 2019; based on Martin, 2004; Béguin & Pueyo, 2011)

Expression of will "Virtual"

Social Design approach proposal

Initial vision

Final outcome

Search for feasibility
Resistance of the "Real"
Fruitful possibilities

Trial of the approach

4.2 Research Strategy

We analyzed the Social Design approach design process in two ways:

(1) We characterized its emerging structure by using "project chronicles" to chart the design process of the approach and its social construction (see Figure 3 "Chronicle of the Social Design Approach trial within the Company") (Barcellini, 2015; Chizallet et al., 2020). The history of the design process—emergence of its salient aspects, decisions or policy changes, stakeholders involved—was thus charted by examining the intermediary objects produced during the design process (Jeantet, 1998), the interactions among the stakeholders and the contextual events.

(2) We identified "fruitful possibilities" that helped moved the approach forward (new cooperation, topics of negotiation, completed stages of the approach, intermediary objects and design requirements that have been met). We identified cases of "real-life resistance" (e.g., refusal to cooperate, negotiate or participate) that required adjusting the requirements of the Social Design approach. All this was done through systematic analysis of verbatim reports from two feedback meetings.

4.3 Corpus Analysis

The Social Design initiative took place at an industrial engineering site of a multinational company from January 2019 to January 2022. Our corpus of data came from:

1. Two meetings with the SDOT and the stakeholders to present the initiative in January 2019 and October 2020, the aim being to discuss trying out the Social Design approach at one industrial site.

2. Six semi-structured interviews on the social construction of the Social Design approach (the head of the HR department, one representative of the union, three interviews with union staff representatives (a central union representative and a representative of the local union section) and one interview with a social dialogue expert from a consulting firm.

3. Documents, intermediary objects and transcripts of notes from twenty-one individual semi-structured interviews with the stakeholders, twenty emails, eight versions of a collaboration proposal between the SDOT and the company, four leaflets published by trade unions, and two feedback meetings.

4. Seven days of global work observations and one workshop (with workers and managers) for work activity analysis.

5. Twenty-one formal and informal meetings throughout the initiative with the managers, the SDOT and the union representatives from October 2020 to February 2022 on the theme of building the approach, implementing it step-by-step, validating it and identifying the stakeholders, including two feedback meetings.

5. Results

5.1. From Resisting the Social Design Approach to Exploiting its "Fruitful Possibilities"

The Social Design approach was unsuccessfully proposed to six companies in the metal-working industry (at both engineering and production sites), to seven business consulting firms (firms, researchers and agencies) and to twelve representatives of employers' federations and employees. The refusals—the first cases of "real-life resistance"—were justified on a number of grounds: fear that the trials could further undermine social dialogue that had already been seriously eroded; a feeling that existing social dialogue was already satisfactory; and the fact that the Social Design approach did not appear to be a joint effort and was backed by only a single union.

Finally, one company agreed to implement the Social Design approach on a trial basis. The trial lasted more than a year and a half (January 2019 to June 2020), including negotiation, persuasion and promotion (Figure 2). Promotion took place through different kinds of meetings between unions (the national federation and the group union representative), the SDOT, and the steering committee (SC) of the national employers' federation, and through meetings between the union and the national HR department. Ultimately, the effort bore fruit through additional mediation from one strategic actor: the Joint Institution (JI), which brings together employee and employer unions and aims to improve social relations within industry. Its role was important, as it strove to prevent tensions between the trade unions. This again shows the degree of resistance to trying out alternative forms of social dialogue.

In the summer of 2020, the industrial group opted to try out the Social Design initiative at one of its sites when it sought to introduce a new digital technology into its engineering businesses, referred to hereinafter as Project T. This social construction process was driven "from the top"—the HR Department—and was not requested by management, the unions or the workers at the local site.

Figure 2

**Chronicle of the Social Design Approach within an Industrial Group**
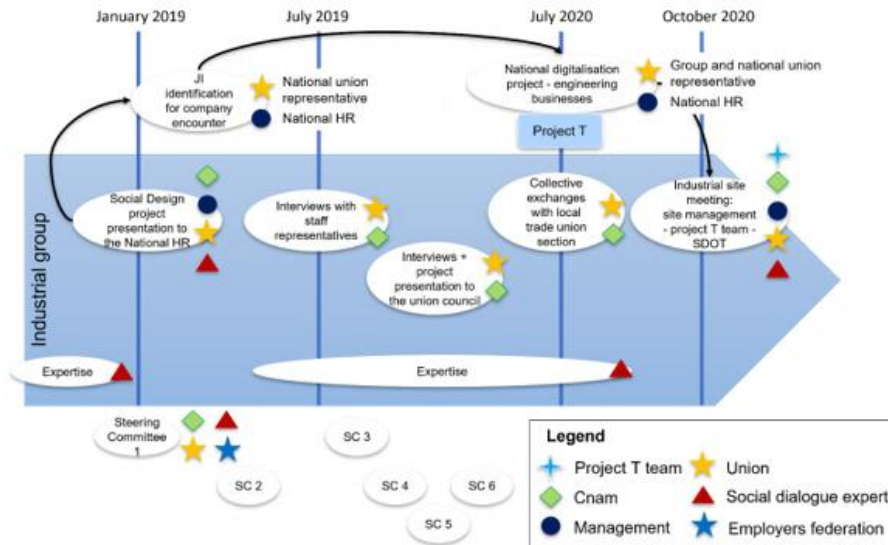
The initiative formally began in October 2020 with the following stakeholders: management at the industrial site (chief site executive and human resources site executive), top and middle management of the engineering division affected by Project T, the Project T design team, four local employee union representatives (including union representatives), the Social Design Operational Team (SDOT), the workers affected by the introduction of Project T and a JI representative.

Figure 3 presents a timeline of the trial from October 2020 to February 2022 and describes the five main phases, each of which had its "fruitful possibilities" and "real-life resistance."

Figure 3

Chronicle of the Social Design Approach trial within the Company
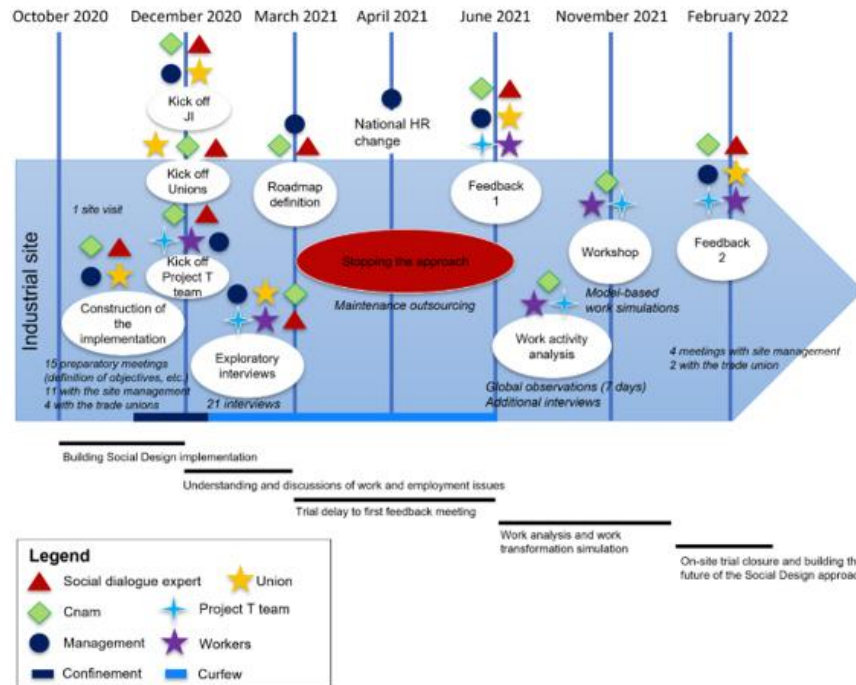
5.2. "Fruitful Possibilities" for Broader Involvement and Negotiations (Deliberations) on the Transformation of Work

The SDOT identified four fruitful possibilities for worker involvement, for the project team and for negotiations (in the meaning of deliberations) on the transformation of work.

The first "fruitful possibility" occurred during the *Building Social Design Implementation* (October to December 2020). This phase mainly involved defining the goals of the Social Design approach for project and site issues. The aim was to formalize a Social Design agreement and form a joint committee to monitor the initiative. There were as many as fifteen preparatory meetings with local management, who were anxious about the impacts on the company's "social climate." The operational results and deliverables were negotiated between management and the SDOT team. The negotiations covered such issues as participation by local unions and characterization of interactions by new workers within the departments.

The first phase ended with three kick-off meetings: one with the JI board; one with the local unions; and a broad-based kick-off meeting that included the site executives, management, the SDOT, the project team and the workers affected by the digital transition. Although union participation was only partial, and although the project team and the workers expressed doubts about the approach, this event was nonetheless a "fruitful possibility," as such a project meeting had never been organized previously.

The second "fruitful possibility" occurred during the next phase *Understanding and Discussions of Work and Employment Issues in Relation to Project T* (December 2020 to March 2021) and the *First Feedback Meeting* (June 2021). The second phase mainly involved identifying and discussing the transformations of work and their consequences for Project T. Twenty-one interviews showed the diversity of views on the consequences. The SDOT requested certain documents on employment (company's strategic orientations, human resource development, i.e., by age, by training program, etc., Project T management and objectives), but the request was turned down. This refusal can be considered to be a case of "real-life resistance."

At the first feedback meeting in June 2021, the results of that phase were widely shared. This was another fruitful possibility. First, the meeting brought together the executives (site, management), the Project T team, the affected workers and certain unions. Second, these stakeholders actually engaged in discussions that produced a consensus on the orientation of work analysis (mainly the organizational aspects, as Project T would increase organizational complexity) and the work situations to be analyzed. The SDOT presented an initial assessment at the first feedback meeting allowed the stakeholders to understand the possible contributions and to clarify expectations related to the approach. The meeting was crucial to consolidating social construction of the Social Design approach and was informed by qualitative knowledge from two intermediary objects:

(1) A map of perceived risks and possibilities for various stakeholders, which showed that the unions and executive management shared the same preoccupations identified by management and local union representatives at the first feedback meeting: *How can we support people in mastering this technology without causing undue suffering?* [...] *If people don't understand, they get stuck*" [manager]. "*Transformations are often implemented under conditions of emergency, often causing pain*" [local union]. Field management and workers were less worried.

(2) A figure illustrating the SDOT's assessment that Project T would greatly increase the complexity of work organization (see Figure 4), a problem not anticipated by management. Figure 4 shows the different services that would be affected by Project T and their interactions with each other before and after implementation.

Figure 4

Complexification of Interactions before and after Project T
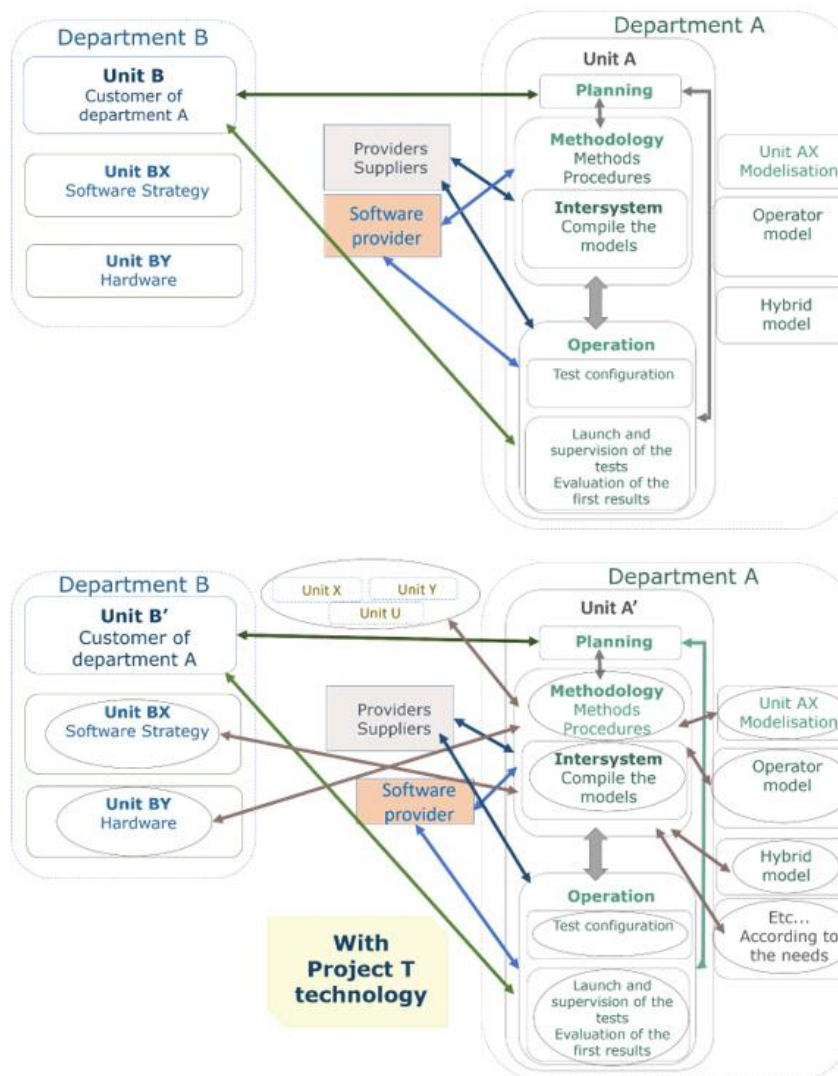
The same dynamic was followed in the *Work Analysis and Work Transformation Simulation* (June 2021 to November 2021). During this phase, the SDOT conducted activity-centred work analysis with the support of the workers and the Project T team. A third fruitful possibility arose from in-depth understanding of the new organizational constraints due to Project T. Participatory work simulation workshops (involving the workers and the Project T team) were then held to identify potential problems and co-design new organizational resources. This was an opportunity for workers and local management to pool resources and share problems caused by implementation of Project T in real work situations. During this phase, the SDOT identified two other crucial intermediary objects: a simulation of various work scenarios (tasks performed, time management, breakdowns and incidents, interactions) (see Figure 5).

Figure 5

Depicting Work Scenarios at the First Simulation Workshop
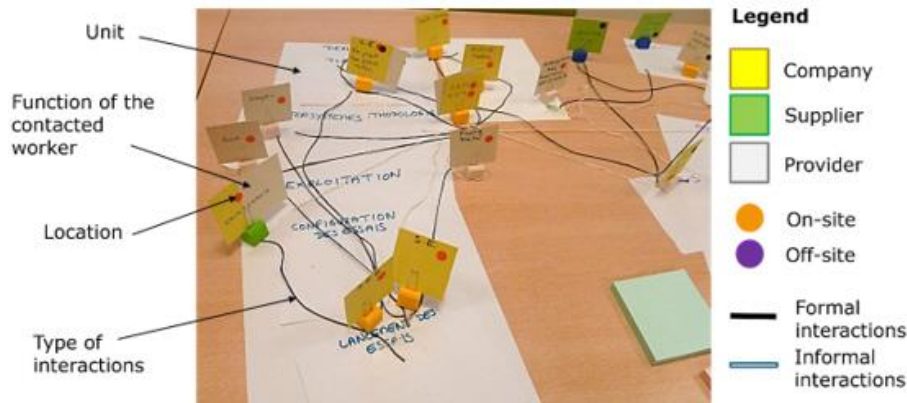
It appears that the knowledge generated by the work activity analysis and simulation positively influenced the stakeholders in their activities, thus improving organizational design and social dialogue. Indeed, at the feedback meetings the project leader explained that he now felt able to explain the project to staff representatives. Organizational duties were also better defined, as shown by the following quotes from the second feedback meeting: *"The function of* [architect]*, that's how it came about"* "[Project T Team]. *"Schemes with interactions have been used on several occasions to support the need to centralize requests and designate people to coordinate information* […] *A person to act as an interface between Department A and the other department. This is a position currently being created"* [Worker]. As for social dialogue, management of the engineering division described how the local unions had changed their attitude in one year, going from mistrust to interest in the project and willingness to support it.

Finally, a fourth fruitful possibility was revealed at the second feedback meeting: *On-Site Trial Closure and Building the Future of the Social Design Approach Phase*, December 2021 to February 2022. Executive management and the employee representatives expressed an interest in continuing to develop this type of approach. A communication kit was thus developed for other sectors with comparable issues.

5.3 "Real-Life Resistance" to Joint Social Construction with Trade Unions: Social Design Agreement and Employment Issues

We identified four sources of "real-life resistance": joint social construction with trade unions; the Social Design agreement; discussion of employment issues; and dependence of the quality of the Social Design approach on the industrial group's overall strategic decisions.

Throughout the initiative, there was "real-life resistance" in two related areas: bringing all the trade unions into the Social Design approach and producing a Social Design agreement. Both efforts required significant—but unsuccessful—work by the SDOT with management and the trade unions. A series of informal discussions were held with the three local trade unions so that they could explain not only their various positions on the Social Design approach but also their refusals

to participate. Refusals came from two of the three trade unions on the site, and their real-life resistance would shape the rest of the approach. Their resistance may have had several causes: a union position of refusing to negotiate with management; competition between trade unions; or lack of trust due to company management unilaterally deciding to reorganize. As for the Social Design agreement, the SDOT wished to define a proposal that would get the trade unions, the workers, and the project team involved in monitoring and implementing the Social Design initiative, in addition to getting engagement from the executives. During the *Building Social Design Implementation* (October to December 2020), the stakeholders and their level of involvement were represented in a number of models that had been proposed and refined at meetings of a local steering committee (the chief site executive and the human resources site executive, the engineering division's top management and the JI representative). However, there was no agreement on any of the proposals. Resistance had several causes: certain trade unions not wanting to participate in the approach; issues in imagining what such an agreement could involve for others; and a refusal by the group's human resources department in January 2021, at a meeting with the site and operational executives, the group union leader and the SDOT.

The Social Design approach social construction was therefore adapted. Local union staff representatives attended the kick-off and feedback meetings; others were regularly invited, and a debrief of all phases of the approach was offered to all local unions. The SDOT ensured joint monitoring through a number of discussions with the unions. Unfortunately, there resulted a certain imbalance in the joint monitoring, as the negotiations were mainly with executives and dealt with their constraints and issues.

Another "real-life resistance" arose over employment issues. At a meeting with the industrial group's human resources department in January 2021, the HR representative refused to produce a number of documents on employment (company's strategic orientations, human resource development (by age, by training program, etc.), Project T management and objectives). Despite the SDOT's arguments, the HR representative reframed the approach as being solely about the transformation of work, to the exclusion of employment issues. The latter issues were thus not discussed in a transparent way, while nonetheless being integral to the Social Design approach and to major strategic decisions by the industrial group.

Another real-life resistance came with a halt to the initiative (March to June 2021). At that time, the SDOT was getting ready to organize the first feedback meeting for Project T. The halt may be explained by:

(1) The company's announcement of a decision to outsource maintenance, in addition to a broader and ongoing job transformation plan. Outsourcing could interfere with Project T in terms of jobs and cooperation with service providers; and

(2) Changes in national human resources and union executives.

The announcement was a tipping point. It almost ended the involvement by the workers and the two trade unions just as the benefits of the Social Design initiative were starting to be recognized. As the social conditions had changed, an ethical issue for the SDOT had to decide whether to continue the initiative or not. Nevertheless, in agreement with—and indeed at the request of—the monitoring committee and local management, and in view of the expectations raised among the workers, a decision was made to continue. In June 2021, the initiative resumed and the first feedback meeting was organized.

6. Discussion and Conclusion

This initiative had three aims: (1) transform local social dialogue at a time when industry was undergoing organizational and technical transformation through an original approach; (2) report on the quality of local social dialogue in France, in particular the sources of resistance to the approach and the fruitful possibilities for implementing it; (3) establishing a framework to analyse its continuous "design-in-use," from a Design Science perspective (e.g., Van Aken & Romme, 2009).

With regard to the first aim, Social Design makes workers and their jobs central to the transformation of work and social dialogue. This type of initiative is in line with socio-technical proposals (e.g., Cherns, 1976), but derives its originality from its grounding in the epistemology of activity-centred ergonomics (Daniellou, 2005; Daniellou and Rabardel, 2005), which proposes models of activity and design project management approaches. Based on Activity Theory proposals (e.g., Vigotsky, 1978; Leplat, 1994), Social Design emphasizes the role of workers in constructing their activities despite the organizational and technical constraints they face, and it empowers them by providing organizational settings where they can transform and redesign their work (Rabardel & *Béguin, 2005)* in a participatory manner (e.g., Emery & Thorsrud, 1976). It also supports cooperation, with a view to transforming work and simulating what future work may involve (e.g., Barcellini, Détienne & Burkhardt, 2014). Finally, it rests on the assumption that the way we understand work activity and the way we negotiate (deliberate) about work (and its organization) are key to collective work transformation and may inform local social dialogue (Dugué & Petit, 2018; Mias, 2014).

In this case, the Social Design approach made several contributions. First, it reshaped social construction around a digital transition project by involving workers, a project team and a union, as well as the site executive. Their viewpoints and knowledge would have otherwise been excluded. Second, it helped generate knowledge from the stakeholders about the processes of transformation, with current and future works (through simulation of future organisation), constituting tipping points in the construction of cooperation between stakeholders – who actually discussed and agreed around work issues and as such trust in the SDOT. It enables a deeper understanding of the project's impacts on organizational complexity and redesign. Finally, management and unions agreed that the social climate surrounding this project had become less explosive but was nonetheless hampered by the company's socio-economic situation. On a broader level, the sector agreement on social dialogue brought the Social Design approach within the scope of industrial relations by inviting management and trade unions to dialogue in other contexts of transformation. Since February 2022, the SDOT team has been promoting the initiative both within and outside the industrial group. Even though this latest effort has not yet led to actual implementation, the positive feedback has been rewarding. Indeed, on the basis of more than 40 years of practice and research in activity-centred ergonomics, Social Design could most certainly be used in other contexts of organizational or technical transformation, such as in services or agriculture.

With regard to the second aim, how the Social Design approach may contribute to the future of local social dialogue on the transformation of work, real-life resistance indicates the limits to real cooperation through social dialogue. We confirmed the existence of limits to using a "joint" democratic approach that brings together trade unions, management and workers. The executives associated such an approach with co-management, which is more widespread in Germany (Barkin, 1978). They feared that the trade unions would block the transformation of work and refuse to deliberate on employment issues and on the consequences of the industrial group's decisions for work and employment. Because of the refusal to negotiate and because of competition for power among trade unions, the executives feared that the unions were limited in their capacity for co-

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management. On both sides, nationally and locally, there was reticence to agree on a mutual commitment to transformations of work and employment. This is still a major challenge in France.

These results provide a reminder that each intervention by a researcher or practitioners in the field is fraught with conflict.

With regard to the third aim, the Social Design initiative provided a design research framework to study use of a participatory approach to design work from a socio-technical perspective. The concepts and methods of Section 4 can be reused to analyze the "design in use" of an alternative approach to social dialogue (Van Aken and Romme, 2009; De Sitter, Den Hertog & Dankbaarl, 1997). Such analysis would involve identifying the chronology of the process, the intermediary objects and the stakeholders, alongside an initial content analysis of group discussions. The same framework has been used in many other contexts of collective design (e.g., Détienne, 2006; Chizallet et al., 2019) to chart how conflicts are resolved and consensus reached in design processes, or to identify positions in cooperative design, sometimes with a more fine-grained analysis of interactions during meetings (by recording the meetings, for instance). A similar methodology may be applied to negotiations and deliberations during social dialogue processes to gain deeper insight into the dynamics of conflictual cooperation. Our methodology, however, has been adapted only to formal social dialogue. It is not suitable for all the numerous off-the-record discussions and negotiations, as it assumes easy access to recordings of discussions. Such access is not always possible in a tense and politicized context.

In similar attempts to learn more about position and cooperation in social dialogue, a historical-cultural approach (Engeström & Sannino, 2020) to union and employer positioning has been a key prerequisite. Indeed, in our study, we felt a need to learn more about the way positions, trust and mistrust develop over time.

Notes

[1] The authors would like to thank the members of the expert consulting firm, in particular the project leader, as well as the Social Design proponent within *the Union.* We would also like to thank the JI representative, as well as the workers, management and trade unions. Thanks go to FSE for your support of this research.

[2] The merger of previous social bodies has resulted in fewer employee representatives because the state wishes to "simplify" social dialogue within companies (Combrexelle, 2015). This merger led to the transformation of social dialogue stakeholders' activities, which needed to be redesigned.

[3] The design and trials of this approach were funded by the European Social Fund in order to investigate employment issues caused by the digital transformation of work and the potential of Social Design as a means to renew social dialogue in France's metal-working industry.

[4] In France, the metal-working industry encompasses companies in aeronautics, auto-making, and electrical and electronic manufacturing. We cannot give more details about the specific sector here, due to confidentiality issues.

[5] "*According to the latest European Working Conditions Survey (2015), the level of fairness, cooperation and trust perceived by French employees is one of the lowest in Europe*" (Erhel, 2021, p. 204). See (https://www.eurofound.europa.eu/data/european-working-conditions-survey) .

[6] There is now a single institution for elected staff representatives, the Social and Economic Committee (Comité Social et Economique, CSE), for all companies with more than 11 employees. This single committee replaces the three institutions that previously existed: the employee representatives (employee representatives are compulsory for companies with over 11 employees); the works council (Comité d'Entreprise, CE, compulsory for companies with over 50 employees); and the Health and Safety Committee (Comité d'Hygiène, de Sécurité et des Conditions de Travail, CHSCT, compulsory for companies with over 50 employees) (Erhel, 2021).

[7] Enrolment in France's program of mandatory negotiation, on the *"quality of life at work"* for example (Andrieu *et al.*, 2018), restores legitimacy and potential power to employee representatives.

[8] The Social Design initiative was also supported by a "political" steering committee that brought together the key trade union and a French body that promotes Industry 4.0 (Alliance Industrie du Futur). This committee was not involved in designing the Social Design approach. Its function was to ensure worker-employer parity and to open up areas where it could be tried out.

References

Andrieu, Françoise, Géraldine Anstett, Séverine Baudoin, Jean-Baptiste Davoine, Karima Demri, Delphine de Saint Rémy, Nathalie Lebreton, Magali Ognier, & Catherine Pellerin. (2018). *Ordonnances Macron. Le nouveau droit du travail.* Editions Legislatives.

Badri, Adel, Bryan Boudreau-Trudel, & Ahmed Saâdeddine Souissi (2018). Occupational health and safety in the industry 4.0 era: A cause for major concern? *Safety Science*, *109*, 403-411. (https://doi.org/10.1016/j.ssci.2018.06.012) doi : https://doi.org/10.1016/j.ssci.2018.06.012

Barcellini, Flore (2015). *Développer des Interventions Capacitantes en Conduite du Changement : comprendre le travail collectif de conception, agir sur la conception collective du travail.* [Habilitation à Diriger des Recherches, Université de Bordeaux]

Barcellini, Flore, Françoise Détienne, & Jean-Marie Burkhardt (2014). A Situated Approach of Roles and Participation in Open Source Software Communities. *Human–Computer Interaction, 29*(3), 205-255.doi : https://doi.org/10.1080/07370024.2013.812409

Barcellini, Flore, Laurent Van Belleghem, & François Daniellou (2014). Design projects as opportunities for the development of activities. In P. Falzon (Éd.), *Constructive Ergonomics* (p. 187-204). CRC Press.

Barkin, Solomon (1978). Labor Participation – A Way to Industrial Democracy. *Relations Industrielles/Industrial Relations*, *33*(3), 391-405. (https://doi.org/10.7202/028886ar) doi : https://doi.org/10.7202/028886ar

Béguin, Pascal (2010). *Conduite de projet et fabrication collective du travail : une approche développementale.* [Habilitation à Diriger des Recherches. Université Victor Segalen Bordeaux, 2]

Béguin, Pascal & Valérie Pueyo (2011). Quelle place au travail des agriculteurs dans la fabrication d'une agriculture durable ? *PISTES, (13)*1. (https://doi.org/10.4000/pistes.1708) doi : https://doi.org/10.4000/pistes.1708

Benchekroun, Tahar Hakim (2017). Organiser la participation et l'agir collectif en situation de coopération conflictuelle. In *Intervenir. Histoires, recherches, pratiques* (eds.) Anne Lise Ulmann, Annie Weill-Fassina, Tahar Hakim Benchekroun, p. 91-109). Octares.

Béthoux, Elodie & Patrice Laroche (2021). Employment relations in France. International and Comparative Employment Relations. *Global Crisis and Institutional Responses*.

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Bucciarelli, Louis L. (1988). An ethnographic perspective on engineering design. *Design Studies*, *9*(3), 159-168. doi : https://doi.org/10.1016/0142-694X(88)90045-2

Caple, David (2019). Impact of New Technology on Job Design, Skill Profiling and Assessing the Physical, Cognitive and Psychosocial Impacts on the Workforce. *Advances in Intelligent Systems and Computing*, *821*, 87-91. doi : https://doi.org/10.1007/978-3-319-96080-7_12

Cherns, Albert (1976). The Principles of Sociotechnical Design. *Human Relations*, 29(8), 783-792. doi : https://doi.org/10.1177/001872677602900806

Chizallet, Marie, Lorène Prost, & Flore Barcellini (2019). Comprendre l'activité de conception d'agriculteurs en transition agroécologique : Vers un modèle trilogique de la conception. *Psychologie Française*, *64*(2), 119-139. doi : https://doi.org/10.1016/j.psfr.2019.03.001

Chizallet, Marie, Lorène Prost, & Flore Barcellini (2020). Supporting the design activity of farmers in transition to agroecology: Towards an understanding. *Le travail humain, 83*(1), 33-59doi : https://doi.org/10.3917/th.831.0033

Combrexelle, Jean-Denis (2015). *La négociation collective, le travail et l'emploi.* Rapport au Premier Ministre. France Stratégie.

Damothe, Bernard & Tahar Hakim Benchekroun (1999). Rôle de l'argumentation dialoguée dans les processus de décision négociée. L'exemple d'un CHSCT hospitalier. *Actes du 34e congrès de la SELF.*

Daniellou, François (2005). The French-speaking ergonomists' approach to work activity: Cross-influences of field intervention and conceptual models. *Theoretical Issues in Ergonomics Science*, *6*(5), 409-427. doi : https://doi.org/10.1080/14639220500078252

Daniellou, François & Pierre Rabardel (2005). Activity-oriented approaches to ergonomics: Some traditions and communities. *Theoretical Issues in Ergonomics Science*, *6*(5), 353-357. doi : https://doi.org/10.1080/14639220500078351

De Sitter, Ulbo L., J. Friso Den Hertog, & Ben Dankbaarl (1997). From Complex Organizations with Simple Jobs to Simple Organizations with Complex Jobs. *Human Relations*, 50(5), 497-534. doi : https://doi.org/10.1177/001872679705000503

Détienne, Françoise (2006). Collaborative design: Managing task interdependencies and multiple perspectives. *Interacting with Computers, 18*(1), 120. (https://doi.org/10.1016/j.intcom.2005.05.001) doi : https://doi.org/10.1016/j.intcom.2005.05.001

Dugué, Bernard & Johann Petit (2018). La discussion des modèles d'action, une condition pour l'action des comités en santé et en sécurité au travail. *Relations industrielles/Industrial Relations*, *73*(2), 252-273. doi : https://doi.org/10.7202/1048570ar

Dupuy, Camille & Jules Simha (2021). Le dialogue social en entreprise en temps de pandémie. *Connaissance de l'emploi, 176*, 4. CEET Cnam.

Emery, Fred & Einar Thorsrud (1976). *Democracy at Work. The report of the Norwegian industrial democracy program.* Leiden: Martinis Nijhoff.

Engeström, Yrjö & Annalisa Sannino (2020). From mediated actions to heterogenous coalitions: Four generations of activity-theoretical studies of work and learning. *Mind, Culture, and Activity*, *20*(1). (https://doi.org/10.1080/10749039.2020.1806328) doi : https://doi.org/10.1080/10749039.2020.1806328

Erhel, Christine (2021). Reforms and new challenges for work and employment in France: Social dialogue under pressure. In *The New World of Work.* Edward Elgar Publishing.doi : https://doi.org/10.4337/9781800888050.00011

Folcher, Viviane (2003). Appropriating artifacts as instruments: when design-for-use meets design-in-use. *Interacting with Computers, 15*(5), 647–663. doi : https://doi.org/10.1016/S0953-5438(03)00057-2

Garrigou, Alain, François Daniellou, Gabriel Carballeda, & Sylvain Ruaud (1995). Activity analysis in participatory design and analysis of participatory design activity. *International Journal of Industrial Ergonomics, 15*(5), 311-327. doi : https://doi.org/10.1016/0169-8141(94)00079-I

Gaudart, Corinne, Johann Petit, Bernard Dugué, François Daniellou, Philippe Davezies, & Laurence Théry (2012). Impacting working conditions through trade union training. *Work*, *41*(2), 165-175. doi : https://doi.org/10.3233/WOR-2012-1281

Genz, Sabrina, Lutz Bellmann, & Britta Matthes (2019). Do German Works Councils Counter or Foster the Implementation of Digital Technologies? First Evidence from the IAB-Establishment Panel. *Jahrbucher fur Nationalokonomie und Statistik*. (https://doi.org/10.1515/jbnst-2017-0160) doi : https://doi.org/10.2139/ssrn.3209710

Guérin, François, Antoine Laville, François Daniellou, Jacques Durrafourg, & Alain Kerguelen, A. (2007). *Comprendre le travail pour le transformer*. Editions ANACT.

Haipeter, Thomas (2020). Digitalisation, unions and participation: The German case of 'industry 4.0'. *Industrial Relations Journal*, *51*(3), 242-260. doi : https://doi.org/10.1111/irj.12291

Jeantet, Alain (1998). Les objets intermédiaires dans la conception. Éléments pour une sociologie des processus de conception. *Sociologie du travail, 40*(3), 291-316. doi : https://doi.org/10.3406/sotra.1998.1333

Jolly, Cécile & Antoine Naboulet (2017). *Mutations digitales et dialogue social.* Note de synthèse France stratégie.

Larose, Alain (2021). Renouveler le dialogue social. *Résolution générale - Congrès de la FGMM-CFDT*. September 2021, Saint Malo.

Leplat, Jacques (1994). Collective activity at work: some line of research. *Le Travail Humain, 57*(3), 209-226.

Lichtenberger, Yves (2013). Négociation sociale et construction d'acteurs complexes. Éloge du conflit et du compromis. *Négociations, 20*(2), 5-18. doi : https://doi.org/10.3917/neg.020.0005

Martin, Christian (2004). L'ergonome dans les projets architecturaux. In *Ergonomie* (pp. 421-435). PUF.doi : https://doi.org/10.3917/puf.falzo.2004.01.0421

Mias, Arnaud (2014). Entre complexification et simplification du travail de négociation. *Nouvelle revue de psychosociologie, 18*(2), 41-53. doi : https://doi.org/10.3917/nrp.018.0041

Morel, Christian (2016). Le refus de négocier. *Négociations, 26*(2). 7-18. doi : https://doi.org/10.3917/neg.026.0007

Poley, Yann & Johann Petit (2019). Comment contribuer au développement des pratiques des représentants du personnel dans les CHSCT : Le cas d'une rechercheintervention à la SNCF. *Activités*, *16*(2). (https://doi.org/10.4000/activites.4641) doi : https://doi.org/10.4000/activites.4641

Ponge, Ludovic & Bernard Dugué (2017). L'enjeu de la prévention primaire lors des projets de changement : quelle place pour le CHSCT ? Quels apports de « l'expertise » ?. *Activités, 14*(1). (https://doi.org/10.4000/activites.2959) doi : https://doi.org/10.4000/activites.2959

Rabardel, Pierre & Pascal Béguin (2005). Instrument mediated activity: From subject development to anthropocentric design. *Theoretical Issues in Ergonomics Science, 6*(5), 429-461. doi : https://doi.org/10.1080/14639220500078179

Reynaud, Jean-Daniel (1975). *Les syndicats en France : Tome 1*. Seuil.

Tassinari, Ariana, Jimmy Donaghey, & Manuela Galetto (2021). Puzzling choices in hard times: Union ideologies of social concertation in the Great Recession. *Industrial Relations: A Journal of Economy and Society*, *26*(1). (https://doi.org/10.1111/irel.12299) doi : https://doi.org/10.1111/irel.12299

Teiger, Catherine (1996). The cooperation between trade unionists and ergonomists: The stakes involved in training trade unionists in ergonomic work analysis. *Safety Science*, *23*(23), 119-124. doi : https://doi.org/10.1016/0925-7535(96)00055-0

Van Aken, Joan Ernest & Georges Romme (2009). Reinventing the future: adding design science to the repertoire of organization and management studies. *Organization Management Journal*, *6*(1)doi : https://doi.org/10.1057/omj.2009.1

Vygotski, Lev Semionnovitch (1978). *Mind in society: The development of higher psychological processes.* Cambridge, Mass.: Harvard University Press.

Wisner, Alain (1972). Diagnosis in Ergonomics or the Choice of Operating Models in Field Research. *Ergonomics*, *15*(6), 601-620. doi : https://doi.org/10.1080/00140137208924462

Wright, Chris F., & Colm McLaughlin (2021). Trade Union Legitimacy and Legitimation Politics in Australia and New Zealand. *Industrial Relations: A Journal of Economy and Society*, *60*(3), 338-369. doi : https://doi.org/10.1111/irel.12285